

September 4, 2020

KEY TAKEAWAYS

- Model projections are continuously updated as more data become available. The adaptive fitting model methodology is responsive to current trends, leading to week-to-week volatility.
- Models are designed to project what **could** happen based on current trends but do not forecast of what **will** happen. Behavioral responses drive changes in current trends. This is increasingly important as we enter the fall season.
- Growth in cases has plateaued overall. However, 2 health districts are currently in a surge trajectory and an additional 8 are showing slow growth.
- The statewide reproduction rate has risen slightly above 1.0. Given the current trend, we would expect a total of over 200,000 cases by Thanksgiving

203,492

Cases Expected by
Thanksgiving

1.004

Reproduction Rate

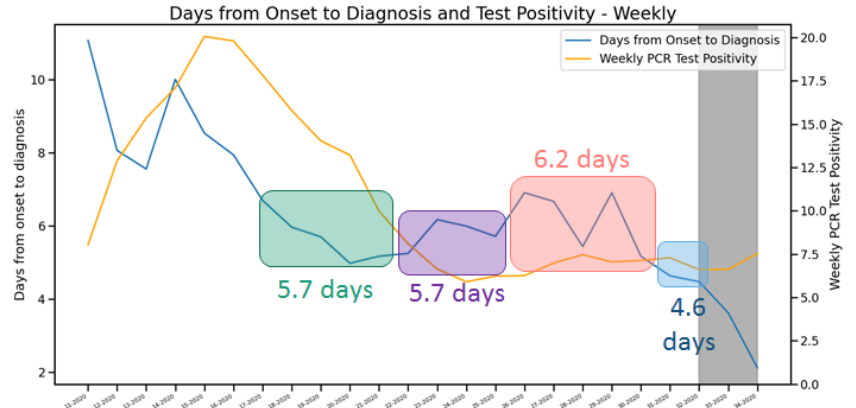
Based on onset date
7 days ending Aug 22

KEY FIGURES

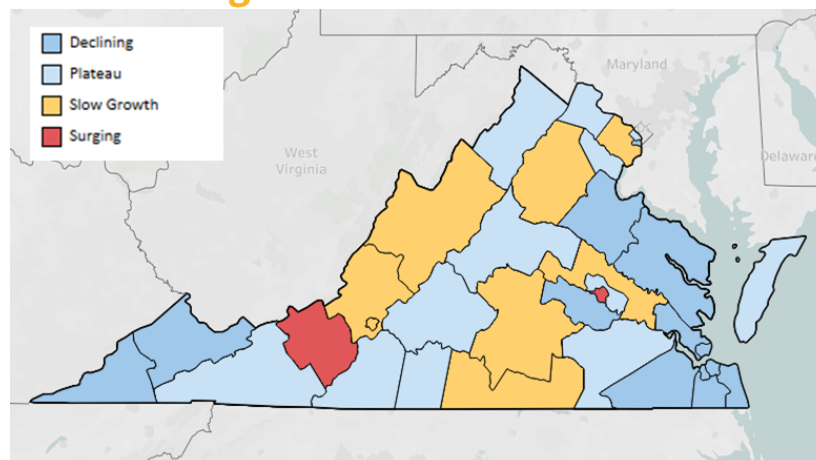
Reproduction Rate

Region	R _e Aug 22	Weekly Change
State-wide	1.004	0.078
Central	0.987	0.070
Eastern	0.929	0.082
Far SW	0.965	0.127
Near SW	1.421	0.441
Northern	0.893	-0.126
Northwest	1.111	0.226

Case Detection



In Surge: 2 Health Districts



THE MODEL

The UVA COVID-19 Model and the weekly results are provided by the UVA Biocomplexity Institute, which has over 20 years of experience crafting and analyzing infectious disease models. It is a (S)usceptible, (E)xposed, (I)nfectious, (R)ecovered epidemiologic model designed to evaluate policy options and provide projections of future cases based on the current course of the pandemic.

THE PROJECTIONS

The UVA team continues to improve the model weekly. The UVA model now uses an "adaptive fitting" methodology, where the model precisely traces past and current trends and uses that information to predict future cases. These new projections are based on recent trends the model learns through its precise fitting of each individual county's cases. This model replaces the 8 scenarios reported in prior weeks. Each health district now has its own unique scenario.

The new model also includes two "what-if" scenarios to predict what we might see if cases increase in response to seasonal effects in the Fall, such as schools re-opening and changing weather patterns. It is still too early to know the impact that these seasonal effects will have. For now, the model assumes a 10-20% increase in transmissibility beginning on Labor Day. The model will be updated regularly to incorporate new information.

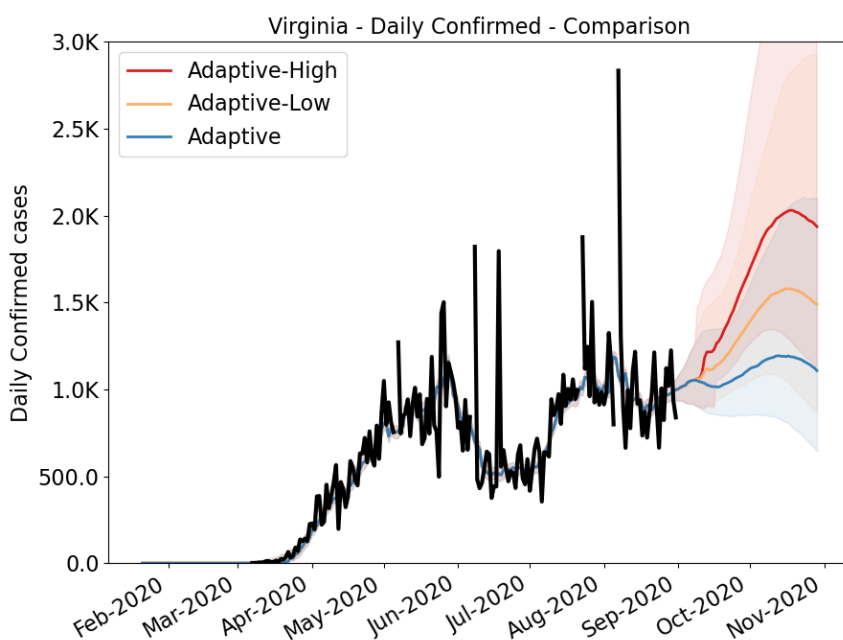
Low impact of seasonal effects: 10% increase in transmission starting September 8, 2020

High impact of seasonal effects: 20% increase in transmission starting September 8, 2020

MODEL RESULTS

With the new modeling approach, the current course predicts that confirmed cases will peak during the week ending **October 18th** with **8,319 weekly cases**. If cases continue on this trajectory, we would expect **203,492** total confirmed cases by Thanksgiving. These projections show an increase in weekly cases compared to last week's projections, likely a reflection of schools beginning to reopen. With the upcoming seasonal changes, including schools reopening, flu season, and changing weather patterns, transmission could increase even more. With a 10% increase in transmissibility beginning on Labor Day, we would expect weekly cases to peak at 10,980 the week of ending October 25th. A 20% increase in transmissibility beginning on Labor Day would lead to a higher peak that same week with 14,131 weekly cases.

COVID-19 is a novel virus causing an unprecedented global pandemic and response. The model improves as we learn more about it.



SURGES, SLOW INCREASES, PLATEAUS, & DECLINES

Fewer health districts have been classified as surging in the past two weeks. This does not mean growth has stopped. The surge trajectory is narrowly defined as having a current increase in cases of at least 2.5 per 100,000 per week. Although only a few health districts meet this criteria (this week: Richmond City and New River Health District), cases continue to grow in several health districts. This week, the UVA team has further classified case trajectories to better describe case growth. Health districts are now categorized into one of four growth trajectories.

Declining: Sustained decreases following a recent peak

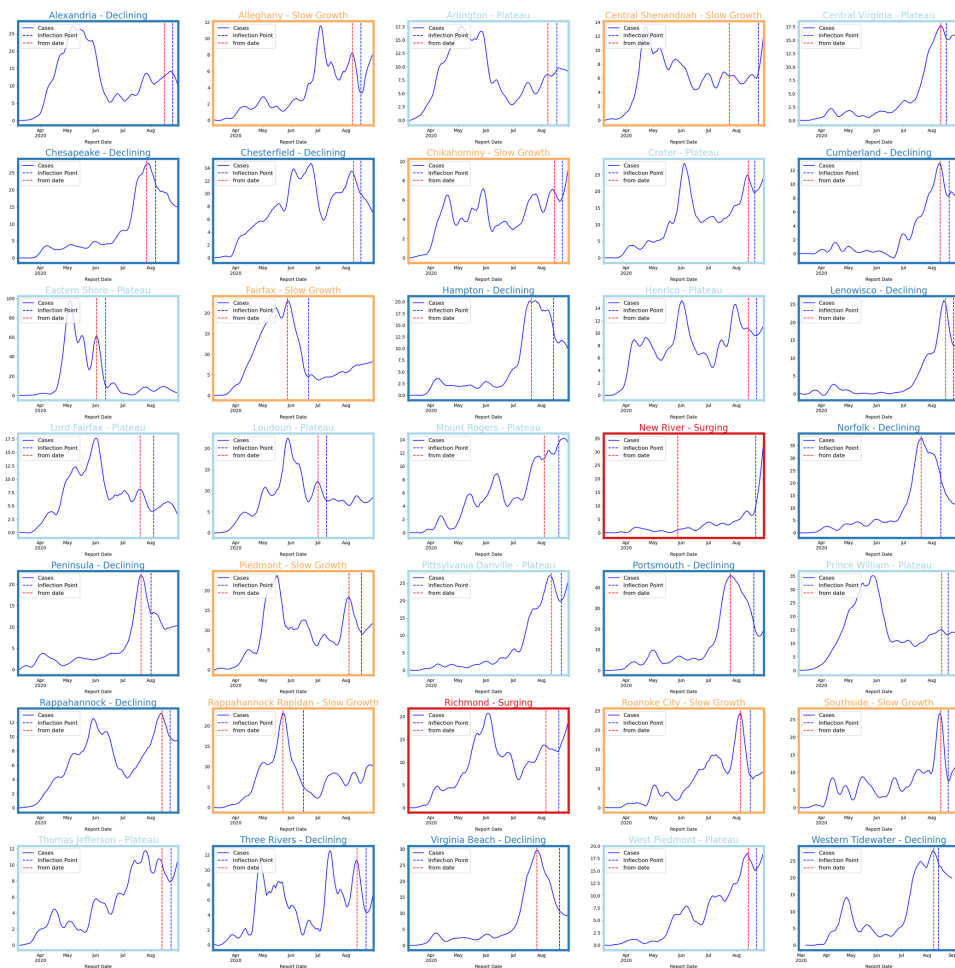
Plateau: Steady case rate with minimal trend up or down

Slow Growth: Sustained growth not rapid enough to be considered a Surge

In Surge: Currently experiencing sustained rapid growth

The number of districts in the "surge" and "slow growth" trajectories increased from 3 last week to 10 this week. Most districts, however, are declining or have plateaued. As seen in the figure on the right, case rates could still be high even in districts that are showing a decline or plateau.

Status	# Districts (last week)
Declining	13 (17)
Plateau	12 (15)
Slow Growth	8 (2)
In Surge	2 (1)



Overall case rates in Virginia are approximately similar to national averages. However, a single statewide case rate oversimplifies the story. Case rates vary considerably across the state, over time, and by key demographics. The above case trajectories show a more detailed picture of the pattern of cases over time. In some health districts, such as those in the Eastern Region, cases surged earlier this summer but are currently at a stable plateau. Other health districts, such as those in the Southwest Region, showed slow growth at the beginning of the pandemic but are currently growing at a faster rate. Still others are beginning to decline, but rates remain high.

Examining these trends is important as we enter yet another expected period of change. Schools have begun to re-open, leading to outbreaks in universities. Weather patterns are beginning to change and with that comes the start of the flu season. When Virginia last entered a period of significant change following the transition to Phase III of the Forward Virginia Plan, we observed a second peak in cases statewide. The upcoming seasonal changes could bring a similar, or even larger, increase in cases. This is a critical time for Virginians to modify behavior and place extra emphasis on safety and health.